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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,352	10/21/2003	Kazuhiko Ueda	9281-4681	4252

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EXAMINER

FENTY, JESSE A

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 03/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/690,352

Applicant(s)

UEDA, KAZUHIKO

Examiner

Jesse A. Fenty

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Andricacos et al. (U.S. Patent No. 5,825,609).

In re claim 1, Andricacos (esp. Figs. 14, 15a) discloses a semiconductor device, comprising:

An insulative substrate (1)<sup>1</sup> having a via hole filled with a conductive material (2);

A lower electrode (5);

A dielectric layer (9); and

An upper electrode (20); wherein the lower electrode, the dielectric layer, and the upper electrode are successively deposited in order on the insulative substrate,

Either one of the lower electrode and the upper electrode (electrically) connects to an end face of the conductive material; and

The dielectric layer is shaped like a ring to surround the via hole.

In re claim 2, Andricacos discloses the device of claim 1, wherein the dielectric layer is shaped like a ring with the via hole at the center.

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<sup>1</sup> Note that the insulation layer (1) anticipates the insulative substrate. A substrate does not have to be the lowest layer in a semiconductor device. Any sub-layer is a substrate to a layer that lies on top of the sub-layer.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Andricacos as applied to claim 1 above, and further in view of Hagerup (U.S. Patent No. 6,477,054 B1).

In re claim 3, Andricacos discloses the device of claim 1, but does not expressly disclose the substrate comprising a low-temperature sintered ceramic. Hagerup discloses a low temperature co-fired (sintered) ceramic substrate with vias (40) and adjoining capacitor. It would have been obvious for one of ordinary skill in the art at the time of the invention to use the capacitor structure of Andricacos in the substrate design disclosed by Hagerup for the purpose, for example, of enhancing the function of the device by releasing heat more effectively and connecting to other device components (Hagerup; column 2, lines 1-12).

***Allowable Subject Matter***

5. Claims 4-6 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:  
The semiconductor device comprising at least the structure of claim 1, wherein the dielectric layer does not cover an end face of the via hole is neither anticipated nor obvious over the prior art of record.

***Response to Arguments***

7. Applicant's arguments filed 12/21/04 have been fully considered but they are not persuasive.

- a. Applicant asserts that the deposition sequence of Andricaco does not fulfill the claim, in that the sequence of the deposition of layers does not correlate. However, Applicant seems to agree that the layers (5, 9 and 20) are all successively deposited as claimed. The substrate is the insulative layer (1), not the layer (12).
- b. Secondly, the claims of the instant application are device claims and therefore the steps involved in making said device do not add substance to the patentable weight of the claim. The phrase, "are successively deposited in order" describes a process for making the product. Applicant is reminded that, a product by process  $\equiv$  claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a product by process  $\equiv$  claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in a product by process  $\equiv$  claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

c. Lastly, Applicant argues that the apparent ring shape of the insulating layer (9) is merely a cross-sectional view of the device of Fig. 14. If the layer (9) does not have a ring shape, how could the cross-sectional view have a ring shape? On the contrary, the layer (9) does have a ring shape as shown in Fig. 15a, one of several shaped embodiments of the invention.

### *Conclusion*

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

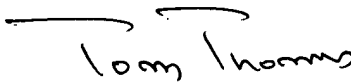
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on 5/4-9 1st Fri. Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jesse A. Fenty  
Examiner  
Art Unit 2815

  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER